TO: HONORABLE CITY COUNCIL
FROM: CITY MANAGER DEPARTMENT: UTILITIES
DATE: APRIL 28, 2008 CMR: 215:08
SUBJECT: UPDATE ON TIME-BASED METERING AND PRICING
PURSUANT TO THE ENERGY POLICY ACT OF 2005

This is an informational report and no action is required.

BACKGROUND
The Energy Policy Act of 2005 (EPACT) required each electric utility to offer time-based metering and pricing options to all customer classes, subject to the City Council conducting an investigation and issuing a decision by August 2007 as to the appropriateness of implementing the requirements. In July 2007, the City Council held a public hearing and approved staff’s recommendations not to implement the electric time-based metering and pricing options required by EPACT, and to defer adoption of the federal standard until at least FY 2008-09. Council also directed staff to report back by June 30, 2008 on the feasibility of adopting the federal standard (CMR: 299:07).

Time-based metering and pricing options provide incentives for customers to respond to electric supply costs and constraints. Modifying behavior in response to time-based prices can result in lower costs, reduced environmental impacts and increased system reliability. Electric supply is more costly during periods of high usage, and therefore, reducing use or shifting use to less costly time periods can reduce utility costs and save money for both the utility and its customers. Because high-price periods coincide with lower power generation efficiency and greater transmission system congestion, time-based pricing can also realize environmental and reliability benefits.

The specified time-based rate options that are to be considered under EPACT are: 1) time-of-use pricing; 2) critical-peak pricing; 3) real-time pricing; and 4) peak load reduction credits.

1) Time-of-use (TOU) pricing provides an electric rate to customers based upon the time of day, or for pre-determined blocks of hours during the day that electric energy is consumed. TOU rates are usually seasonal in nature, apply to pre-determined blocks of hours, and are published in advance.
2) Critical-peak pricing (CPP) goes a step further than TOU pricing by adjusting prices more frequently and with shorter notice, with an increase of prices for peak usage hours during days of unusually high electric system demand to directly reflect actual wholesale market price spikes.

3) For real-time pricing (RTP), retail rates change on an hourly, or possibly more frequent, basis. Rates are usually announced to customers on an advance, or forward, basis.

4) Peak load reduction credits (PLRC) are provided to large load customers who enter into pre-established agreements to reduce load during peak hours.

The City of Palo Alto Utilities (CPAU) has been offering TOU rates to commercial and industrial customers (rates E-4-TOU and E-7-TOU) since January 2002. CPAU has also maintained, in cooperation with its large customers, a Voluntary Load Curtailment program that has successfully demonstrated demand reduction results in times of need to help ensure reliable system operation. The voluntary customer demand reduction is also facilitated by CPAU through the Meterlinks Program, which is offered to large business customers with interval metering. The Meterlinks Program, a web-based monitoring tool, allows customers to view their own hourly electricity usage data, and to take steps to modify their energy use patterns on a voluntary basis.

DISCUSSION
In July 2007, staff reported to the Council its conclusion that implementation of time-based metering and pricing options were not practical or cost-effective for some Palo Alto electric customer classes at that time. The reasons behind this conclusion included utility billing system limitations, insufficient metering capability, and uncertain and expected low customer participation due to low time-based cost differences at the time.

At this time, staff still believes that expanding efforts in time-based metering and pricing options is neither practical nor cost-effective for some Palo Alto electric customer classes for reasons similar to those identified in July 2007: 1) insufficient net customer or community benefits; 2) limitations of the current utility billing system and resource constraints due to the ongoing city-wide SAP upgrade; and 3) insufficient metering capability.

1) **Insufficient net customer or community benefits**
   Palo Alto has offered voluntary TOU rates to commercial demand-metered electric customers since January 2002, but no customers have chosen service under the commercial TOU rate schedules. CPAU completed an evaluation of technical and economic potential for energy efficiency in work conducted with the Rocky Mountain Institute (RMI) in 2005. RMI recommended that additional efforts in price-driven demand response are not likely to achieve substantially more participation than the current voluntary program, which is capable of lowering short-term electric demand by 3 to 5 MW. RMI cited several factors for these conclusions, including: CPAU’s relatively flat load profile with little ability to shift load from peak to off-peak periods; relatively small air conditioning demands; and the flexibility of CPAU’s hydroelectric supply resources. Additionally, low participation may require charging participating customers for their time-based meter, which would make the program even less attractive.
After review of the FY 2006-07 peak and off-peak cost differential for CPAU, staff reaffirmed that the potential for time-based metering and pricing options remains low for Palo Alto electric customer classes at this time.

2) **Limitations of the current customer information and billing systems.**

The current utilities billing system cannot readily accept the necessary programming modifications required to generate customer bills on a TOU rate option. Manual billing would be required to implement these rate options, and the current staffing level is insufficient to support manual billing. The CPP, RTP and PLRC time-based rate options are not available under the current billing system either. The current billing system is in the process of migration to a new Utility Customer Information System (CIS) in conjunction with the city-wide SAP upgrade. The first phase of this process is expected to be complete by the end of April 2009 with subsequent phases or enhancements beginning after successful implementation of this first phase. Until then, staff resources devoted to billing system maintenance are assigned to this CIS project.

3) **Insufficient metering capability.**

The only Palo Alto meters capable of time-based pricing are demand meters currently installed in commercial and industrial applications. The majority of current meter installations are not capable of being programmed for TOU, CPP or RTP options. Staff initiated a project to gather information on potential replacement of existing residential and commercial single-phase electric meters with meters capable of recording consumption by time. Staff's review of options for residential and commercial metering included meter purchasing, calibration standards, communication capabilities, meter maintenance budgets, staffing, and Capital Improvement Program impacts.

Staff provided a report to Council on the Automated Meter Reading (AMR) Pilot Project (CMR:419:07) in November 2007. The pilot project demonstrated that an AMR system is able to meet many objectives with regards to reading electric, gas and water meters for billing purposes. Staff plans to return to Council in 2009 with a recommendation on how to further implement AMR. The factors delaying a recommendation at the time of the November 2007 report included: 1) the rapid advancement of technology resulting in newer technologies anticipated to support other utilities program objectives, thus providing added benefits; and 2) the SAP/CIS upgrade project and its requirements on the same manpower resources as the AMR project, impacting the pace of progress in the AMR project.

In the meantime, staff continues to move forward on its existing AMR pilot program, learning more about the technology from the perspective of the meter readers, the meter operations and maintenance shops, and the billing area.

For the reasons noted above, it is staff's determination that a further delay in implementing the electric time-based metering and pricing options required by the EPACT is appropriate. Staff will continue to assess the feasibility, cost-effectiveness and practicality of expanding time-based metering and pricing. After the new billing system is operational, staff will report again on this matter to the UAC and Council.
BOARD/COMMISSION REVIEW AND RECOMMENDATIONS
At the April 2, 2008, Utilities Advisory Commission (UAC) meeting, staff presented an information report on the subject. In the UAC’s discussion, one commissioner asked why Palo Alto is continuing to study time-based metering options if it doesn’t appear to make sense even if the metering and billing system issues didn’t exist. Another commissioner commented that since the residential customers comprise only 16% of the load, there is even less chance that significant savings could accrue from expanding time-of-use rates to that sector.

RESOURCE IMPACT
Any costs associated with the recommended evaluations will be included in the various Utilities Department operating budgets.

POLICY IMPLICATIONS
These recommendations do not represent a change in current City policies.

ENVIRONMENTAL REVIEW
This informational report does not constitute a project under the California Environmental Quality Act, pursuant to California Public Resources Code Section 21065, therefore, no environmental assessment is required.

ATTACHMENT

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